Utility Savings Initiative Forum

March 23rd, 2016

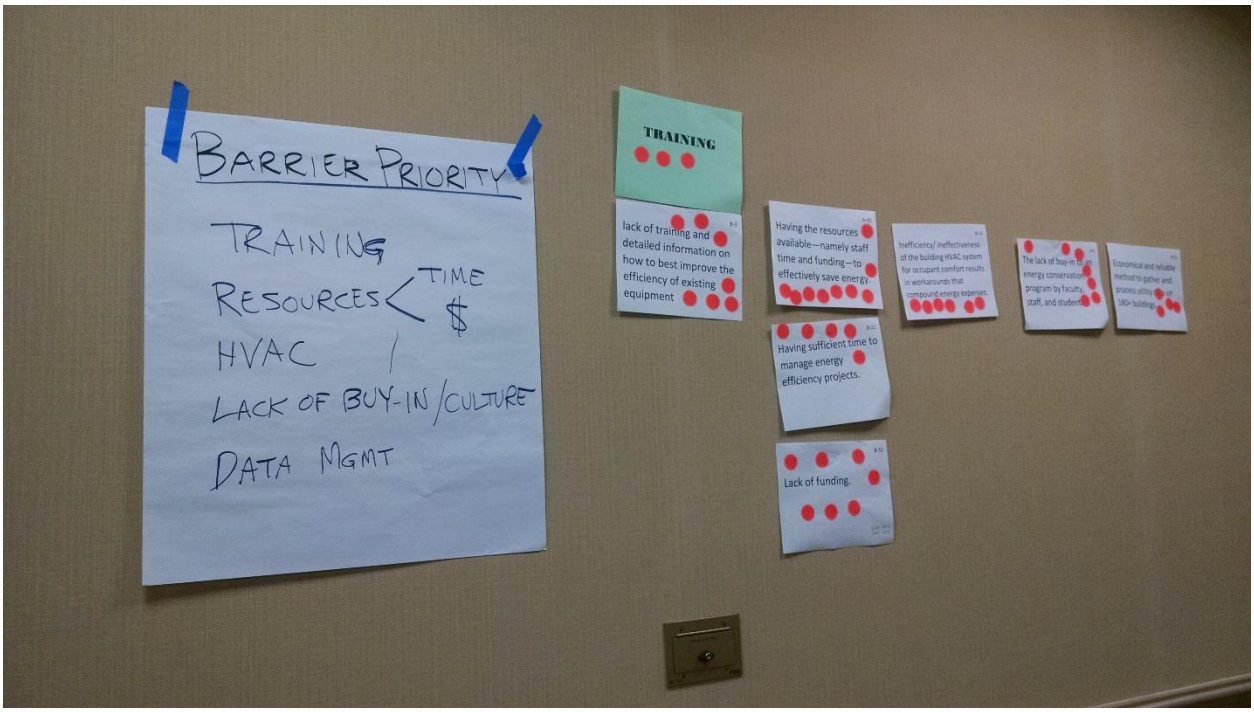
Executive Summary

The first DEQ Utility Savings Initiative Forum was held on March 23, 2016 at Wake Technical Community College in order to bring together stakeholders and participants in the Utility Savings Initiative (USI). USI is a statewide program to reduce energy and water usage and cost in government-owned facilities, which began in 2002 with state agencies and universities and has expanded to include community colleges, K-12 schools, and city and county governments.

The purpose of the USI Forum was to identify common barriers and share solutions in a unique format of facilitated discussions where participants were grouped in the morning according to what key role they held: Energy Manager, Facilities, Business Administration, or Planning and Design. In the afternoon the groupings were by sector: University, Community College, Agency, and K-12 Schools and Local Government.

Prior to the start of the Forum, the registrants were asked to submit their top 3 barriers via email, and 55 barriers were compiled and arranged into 7 main topics by the USI Staff. As a starting point for discussion for each group, the 55 barriers were each posted on the wall arranged in 7 topic areas, and participants selected their top 3 barriers by voting with sticky

dots. Then, each group discussed solutions to their top barriers led by talented volunteer facilitators. The solutions were captured on flip charts, and put into spreadsheets by USI staff.



The results of the USI Forum are presented below as a list of **solutions** under the main topics: Staff Training, Money, Behavior, Management, Communications, Equipment, Operations, Project Management, Policy, and Data Management. Also, a chart of the priority **barriers** for each session are shown, the top barriers being Time and Money. In addition, the list of all barriers, and the raw data from each session, are in the USI Forum Sessions Data Excel Workbook available on the USI website.

We hope you find this information useful, informative, and food for thought and action to assist you in managing your energy and water usage and cost. The USI Staff will use this information to prioritize our efforts as well. We thank all the 100+ participants and welcome your feedback on this and future activities to support USI members.

We'd like to also express our appreciation to the Volunteer Facilitators for their donation of time in helping plan logistics and keeping discussions on track during the USI Forum: Dan Mull, Cindi Goodwin, Carol Rosenfeld, Dana Phillips, Jon Jones, Miriam Tripp, Michael O'Connor, Will Johnson, and Dorrine Fokes.

Topics	Forum Solutions
Staff Training	**Funding:**
Staff Training	Energy Performance Contract can include X training days per year
Staff Training	Put 3 years additional training in contract
Staff Training	Have a budget for training
Staff Training	Include training in capital project costs
Staff Training	New buildings should require training in operating budget in addition to utility costs, personnel and Repair and Renovation funding
Staff Training	**Delivery Method:**
Staff Training	Use vendors and utilities for training lunch and learn
Staff Training	Online Training: Schneider Energy University, Trane, Pacific NW National Labs
Staff Training	Lunch N Learns; Brady Trane, Heat Transfer Sales, Duke Energy (arc flash, etc.), ESC Carolinas (OSHA), Philips Lighting
Staff Training	Multiyear training contracts
Staff Training	Include energy info in new employee or new student orientation
Staff Training	Video tape initial training and use for new employees
Staff Training	Tap into collective knowledge base for user behavior education and behavior modification.
Money	Energy Service Agreements (PC or maintenance contracts)
Money	Create performance contracting for new buildings
Money	Utility company incentives:
Money	Use Electric Co (Duke and Dominion) rebates to fund energy projects; Prescriptive and Custom
Money	Use Opt Out Utility credits to fund energy projects
Money	Look at Opt Out vs. Opt In for rebates by account
Money	Can get credits from Duke Energy to Opt Out annually and opt in for rebates
Money	Have policy that energy rebates go to fund energy projects; get more rebates
Money	incentives not flexible enough
Money	Bonds: QZAB, QECB, QSCB go against bond limit
Money	Work with OSBM to create energy eff fund
Money	Expand and improve 1292 program
Money	Develop trust fund to fund consistent maintenance needs (like highway trust fund)
Money	Green Revolving Loan Fund
Money	Work with budgeting office to create an eEE account (stash rebates here)
Money	Being proactive with business office to access funds
Money	Way to give staff raises including tech trades
Money	Put budget for energy manager in utility budget
Money	Rule of thumb: $1-2 million energy spend to justify energy manager to result in 5-10% up to 20% savings

Money	Need HR position budget and description for HVAC Tech position
Money	Reclassify positions; need $ to IT Tech, Database manager, HVAC, Electrical or Controls
Money	Incentives besides pay for recruitment & retention
Money	Use interns / work study students for some tasks.
Money	Approach Foundations to fund projects
Behavior	Culture Change
Behavior	Develop Peer Influence
Behavior	Give prizes
Behavior	Assign (adopt) a light switch
Behavior	Teamwork
Behavior	Work with Recycling and Sustainability programs
Behavior	Work with Science Club or Science Teams
Behavior	Attend ACCFO District meetings
Behavior	Shared resources big schools help small schools
Behavior	Sharing successes
Management	Eliminate cubicle kitchens
Management	Make presentation to VPs for Equipment
Management	New bond $ from NC Connect used for Controls, ADA Upgrades, etc.; projects should consider energy use
Management	Support from leaders (top-down)
Management	Support from USI & Agencies (DPI)
Management	Top-Level Support for Policy and Programs
Management	Establish standards for staffing levels
Communications	Need cooperative communication
Communications	Put out energy articles on social media
Communications	Create one-pager that helps inform decision makers/director
Equipment	**Thermostats:**
Equipment	Disconnect Thermostats in place and put sensor in return air duct
Equipment	Move thermostats to optimal locations
Equipment	**HVAC:**
Equipment	Move supply vents to adjust air flow/temps on occupants
Equipment	Implement technologies that allow for ongoing monitoring and improvements.
Equipment	When VAV calls for heat, send signal to open HW valve
Equipment	**Maintenance:**
Equipment	Outsource Maint for Chillers, HVAC; can't afford staff (GCA Services)
Equipment	Contracted Mechanical & Maint Services
Equipment	Use a Plug Load Boss Outlet which is programmable

Equipment	Use a Plug Load calculator- up to 16% of cost of energy
Equipment	Use Energy Star rated appliances
Operations	**Scheduling:**
Operations	4 day work week
Operations	Shut down buildings in summer on Fridays for 10 weeks, 4x10 workdays, to save on security and operating costs
Operations	Shutting down parts of bldgs not in use
Operations	Consolidating to one building in summer saved $8,000 one month
Operations	Difficult if Clubs and Staff in on Fridays; Cont. Ed on weekends; Maintenance works 7d/wk in summer
Operations	Follow up - holiday email w/instructions (cut sheet), shutdown/startup team does spot checks, walk throughs
Operations	If one person works after hours/weekends- encourage them to work from home vs. running HVAC for one person.
Operations	Space consolidation
Operations	Need leadership support to only use most efficient buildings
Operations	Get top management support for specific buildings not to be used after hours or weekends
Operations	**Space Heaters:**
Operations	Have a space heater directive from HR or safety
Operations	HR can approve health-related need for space heaters
Operations	Publish space heater policy; see state policy; can change setpoints; can be campus or jurisdictional policy
Operations	Space Heaters: cut cords, or collect and tag with note to owner to collect and give them a warning
Operations	**Temp Setpoints:**
Operations	College President signed guidelines for temperature setpoints
Operations	ASHRAE guidelines; 80% happy with comfort window 68 degree heating, 74 degree cooling
Operations	68 degree setpoint too cold results in space heaters; make setpoints realistic (73 and 69? Need to specify setpoint for heating or cooling)
Operations	Implement measures (ECMs) in strategic manner starting with awareness first and start with management
Operations	Do projects that require little to no money
Operations	Use contractor position for energy manager
Operations	Turn off every other light at night for buildings and parking decks
Project Mgmt.	**Designer Selection:**
Project Mgmt.	Getting the right consultants and sub consultants on board
Project Mgmt.	Rely on the strength of our convictions in selection
Project Mgmt.	Require evidence of prior projects and energy data.
Project Mgmt.	Require submissions to include info on building energy performance for proposed firm's previous projects

Project Mgmt.	Use value (not lowest price) to determine business relationships to the extent rules permit.
Project Mgmt.	Check with peers / similar projects on experience with firm
Project Mgmt.	**Design:**
Project Mgmt.	Enforce Energy Code BTU/SF using Commissioning to verify at 11 months as part of contract
Project Mgmt.	Have building standards that exceed energy code and require LCC (life-cycle cost analysis)
Project Mgmt.	Life cycle analysis/planning budget process
Project Mgmt.	Set energy targets for energy use per square foot for building during early planning.
Project Mgmt.	Use historical info about bldgs to show what eventual full costs were
Project Mgmt.	Reviewing the energy bills and data for recent projects (can get info from Leonard Thagard-SCO).
Project Mgmt.	**Construction:**
Project Mgmt.	Commission equipment with third party to verify performance
Project Mgmt.	Do Commissioning at 10 month follow-up for Construction
Project Mgmt.	Use TAB Testing Adjusting and Balancing to ensure appropriate HVAC equipment load and airflow
Project Mgmt.	Interscope with SCO inspection requires training and O&M manuals
Project Mgmt.	**Followup:**
Project Mgmt.	Chart savings and charge project to cost code
Project Mgmt.	LEED Building doesn't perform, wrong numbers in benchmark
Project Mgmt.	Set expectations from the beginning about reinvesting in EE
Project Mgmt.	Tie projects to education, economy, fleet vehicles
Project Mgmt.	Knowledgeable director who has a voice in the planning process
Project Mgmt.	Wake Tech N. Campus all LEED
Policy	Written policy - consequences/accountability
Policy	Create a Strategic Energy Plan with sign off of top management and use as Policy
Policy	Policy enforced
Policy	Link the energy policy to the state policy for the UNC system.
Policy	Put behavior in terms of % on energy use of providing commodity of heating and cooling; 6%, 10%, 20%
Policy	Educate legislators and decision-makers . Support ASHRAE, ACEC, and others in their missions.
Policy	benefits of proper maintenance
Policy	benefits of energy program/policy
Policy	Pursue Legislation
Data Mgmt.	Invest in energy monitoring system - quantifiable information
Data Mgmt.	1. Accurate and reliable; 2. Data retrievable by owner; 3. Multi-user licensed; 4. Turnkey; 5. Don't be a beta-test!
Data Mgmt.	Portfolio Manager tool free from DOE

Data Mgmt.	Facility Dude/School Dude service for data entry
Data Mgmt.	EnergyCap for Schools
Data Mgmt.	Utility data pulled by third party, such as Capturis (Public Safety RFP)
Data Mgmt.	Utility Profiler Online for demand meters (time of use) Duke Energy
Data Mgmt.	Many other vendor options available
Data Mgmt.	Work with Utility on Data management; get electronic data transfer
Data Mgmt.	Have inhouse database for inhouse submeters (UNC)
Data Mgmt.	Smart meters needed for each bldg

PRIORITIES FOR BARRIERS BY GROUP

Priorities for Barriers by Group	**Morning Session: Key Roles**				**Afternoon Session: Sectors**			
Barrier Categories	**Energy Mgrs**	**Facilities Mgmt**	**Business Admin**	**Plan & Design**	**Univ**	**Agency**	**Comm Colleges**	**K12 Schools, Local Govt.**
Project Funding		4		3	3			2
Staff Pay	2			2	2		2	
Staff Time	2			2			2	
Staff Training	1	1						
Management Support	4		2					2
Occupant Behavior		5					1	
Equipment & Technology	3	2						
Data Management	5							
Procurement*		3						
Influence Legislature*			1					1
Designer Selection *				1				
Operations & Maintenance*					1			
Bldg Design Process*						1		
* = new session barrier								

USI Website:
http://deq.nc.gov/conservation/energy-efficiency-resources/utility-savings-initiative